

REMARKS

This application has been carefully reviewed in view of the above Office Action. Applicants appreciate the indication that claims 1-24 and 50-57 were allowed and claims 26-29, 33-35, 41 and 42 were objected to but indicated to be allowable over the cited art. Applicants appreciate the indication of allowed and allowable claims. Applicants respectfully request reconsideration of the rejected claims in view of the following:

THE REJECTIONS UNDER 35 U.S.C. §102

Regarding claims 25, 30-32 and 36, claim 25 has been amended to provide that the first and second microspheres have first and second coatings, and that the first and second coatings bond to each other but not to themselves.

The Papadimitrakopoulous et al reference (Papadimitrakopoulous) uses apparently uncoated microspheres of silicon dioxide. These uncoated spheres are negatively charged and during the assembly process bond to the positively charged polycation coatings. The polycation coatings do not bond to each other since they are each positively charged, and there is no suggestion of two coatings that bond to each other. Thus, the spheres of Papadimitrakopoulous bond to the coating and not to each other, and the coatings bond to the spheres and not to each other. This is in contrast to the claim requirement that the first and second microspheres have first and second coatings and that the first and second coatings bond to each other but not to themselves. Moreover, the use of two coatings on Applicants' spheres provides an additional mechanism to control the strength of the bond over and above that of Papadimitrakopoulous. This can be advantageous in some embodiments since a bond that is either too strong or too weak may be unsuitable for use in certain embodiments of a photonic crystal.

Regarding claim 30, the above remarks are equally applicable.

Claim 31 has been essentially cancelled and replaced with a claim of different scope, since its original language was somewhat inconsistent with the amendment to claim 25.

Regarding claim 32, the above remarks related to claim 25 are equally applicable.

Regarding claim 36, the Office Action asserts that paragraphs 24 and 47 support that the first and second polyelectrolyte layers have opposite charge. Applicants find no support for this assertion since the coatings discussed in Papadimitrakopoulos are polycation coatings, which inherently have a positive charge, and thus do not have opposite charge.

In view of these clarifying amendments and the above remarks, claims 25, 30, 32 and 36 are believed allowable, and reconsideration is respectfully requested.

Regarding claims 37-40 and 43, independent claim 37 has been amended in a manner similar to that of claim 25 and claims 38 and 43 have been amended to be more consistent with the new language of claim 25. Accordingly, the above arguments favoring patentability are equally applicable.

Regarding claim 39, the above remarks relating to claim 32 are applicable.

Regarding claim 40, this claim has been essentially cancelled and replaced with a claim of different scope since the original language was somewhat inconsistent with amended claim 37.

In view of these clarifying amendments and the above remarks, claims 37-39 and 43 are believed allowable, and reconsideration is respectfully requested.

Regarding claims 44-47 and 58-60, there is no teaching or suggestion of a templated substrate in Papadimitrakopoulos, and accordingly can be no anticipation. Reconsideration and allowance of claims 44-47 and 58-60 are respectfully requested.

Regarding claims 62-64, claim 62 has been amended to assure that it is understood that the microspheres are coated with a polymer prior to the and separate from any bonding operation by indicating that the “coated” microspheres are “provided”. Also, the elements of the claim have been given letter designations a, b and c and have been designated as “ordered steps” to confer an order to the process that makes it clear that the microspheres are already coated prior to the bonding. In Papadimitrakopoulous, the spheres are uncoated until the bonding process when they are coated with a polycation. Accordingly, there can be no anticipation of claims 62-64. If the order of the claim is applied to Papadimitrakopoulous, his process would not function. Reconsideration and allowance of claims 62-64 are respectfully requested.

THE REJECTIONS UNDER 35 U.S.C. §103

Regarding claims 48, 49 and 61, reconsideration is respectfully requested since there is no teaching or suggestion in Papadimitrakopoulous to use a templated substrate. In Papadimitrakopoulous, light interference patterns are used to control placement of microspheres, thus, a templated substrate would be superfluous and possibly inhibit proper placement of the microspheres. Additionally, the above remarks regarding claims 44 and 58 are equally applicable. Reconsideration of claims 48, 49 and 61 is respectfully requested.

Regarding claims 48, 49, 61 and 65, the Office Action suggests that a motivation for the coating substitution is “*for the purpose of analyzing protein interactions*” (page 7, last line of section 5). It is respectfully submitted that the present embodiment involves fabrication of photonic crystals, and is unrelated to “analyzing protein interactions”. The undersigned sees no reason why one of ordinary skill in the art of photonic crystal fabrication would generally be charged with any knowledge of protein interactions, and finds no reason why “analyzing protein interactions” is relevant or provides any motivation for the proposed coating substitution. Additionally, the above arguments and amendments regarding claims 44, 58 and 62 (the relevant independent claims) are

equally applicable, and are believed to render dependent claims 48, 49, 61 and 65 clearly patentable as well. Reconsideration of claims 48, 49, 61 and 65 is respectfully requested.

Specifically regarding claim 65, the amendments to claim 62 now clearly call for a process that is quite distinct from Papadimitrakopoulos as explained above. Accordingly, all arguments regarding claim 62 are equally applicable. Reconsideration of claim 65 is respectfully requested.

In view of the above, all claims are now believed to be in condition for allowance. Accordingly, reconsideration and allowance are respectfully requested at an early date.

The undersigned additionally notes that many other distinctions exist between the cited references and the invention as claimed. However, in view of the clear deficiencies in the art as pointed out above, further discussion of these deficiencies is believed to be unnecessary at this time; failure to address each point raised in the Office Action should accordingly not be viewed as accession to the Examiner's position.

No amendment made herein was related to the statutory requirements of patentability unless expressly stated herein and no amendment made was for the purpose of narrowing the scope of any claim unless an argument has been made herein that such amendment has been made to distinguish over a particular reference.

Should the Examiner feel that additional issues are left to be resolved, the undersigned respectfully requests the courtesy of a telephone interview prior to issuance of a new Office Action. The undersigned can be reached at the telephone number below.

Respectfully submitted,



Jerry A. Miller
Registration No. 30,779

Dated:

Please Send Correspondence to:
Jerry A. Miller
Miller Patent Services
2500 Dockery Lane
Raleigh, NC 27606
Phone: (919) 816-9981
Fax: (919) 816-9982
Customer Number 24337